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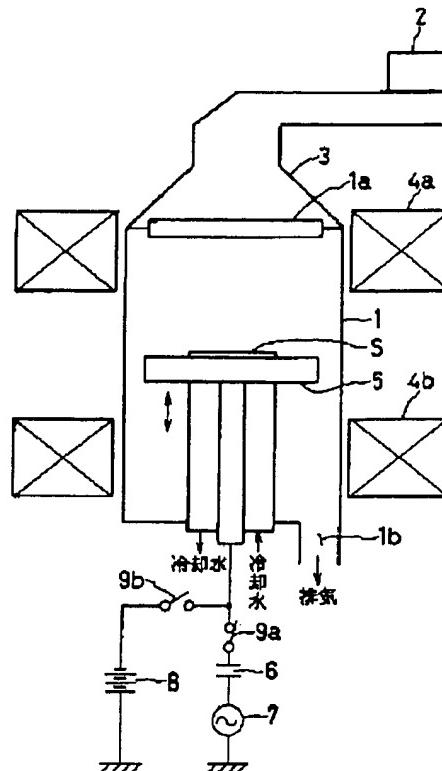
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TITLE : ECR PLASMA ETCHING METHOD OF  
DIAMOND THIN FILM



ABSTRACT : PURPOSE: To etch a surface smoothly without causing protrusions due to a rough surface by etching a diamond thin film with a mixed gas of oxygen and argon where the concentration range of oxygen gas, a reaction gas pressure, and a microwave power surface density are specific values.

CONSTITUTION: A sample substrate S where a diamond thin film is formed is positioned near the middle position of a pair of magnetic coils 4a and 4b, namely near the center of a mirror magnetic field, by moving and adjusting a sample stand 5 up and down. Then, a bias voltage is applied to the sample substrate S and at the same time is cooled, a mixed gas of oxygen and argon whose oxygen gas concentration range is 2-20vol.% is used as a reaction gas, and the reaction gas pressure is set to 10mTorr or less. Then, the diamond thin film is etched where a microwave power surface density is 2.0W/cm<sup>2</sup> or less.

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